WHAT IS CLAIMED IS:

1. An apparatus comprising:

a vacuum chamber containing a particle detecting integrated circuit, the particle detecting integrated circuit including a device having a pair of exposed conductive lines spaced at a critical pitch corresponding to particles of interest.

2. The apparatus of claim 1 further comprising a computer system linked to the particle detecting integrated circuit.

3. The apparatus of claim 1 wherein the particle detecting integrated circuit includes a remote-controlled movable cover protecting the device.

4. The apparatus of claim 1 wherein the particle detecting integrated circuit includes a plurality of devices.

5. The apparatus of claim 4 wherein the plurality of devices include a uniform pitch representing a single particle size between pairs.

6. The apparatus of claim 4 wherein the plurality of devices include a plurality of pitches representing a range of particle sizes between pairs.

7. The apparatus of claim 2 wherein the computer system detects a change in current when a metallic particle shorts the pair of exposed conductive lines.

8. The apparatus of claim 2 wherein the computer system detects a change in capacitance when a non-metallic particles lodges on or between the pair of exposed conductive lines.

9. An apparatus comprising:

a mask stage in a vacuum chamber of semiconductor processing equipment;

a particle detecting integrated circuit embedded in the mask stage, the particle detecting integrated circuit containing a device having a pair of conductive lines exposed to a local vacuum environment, the pair of lines spaced at a critical pitch corresponding to particles of interest.

10. The apparatus of claim 9 further comprising a computer system linked to the particle detecting integrated circuit.

11. The apparatus of claim 10 wherein the pair of conductive lines have an applied voltage.

12. The apparatus of claim 11 wherein the computer system detects a change in current when a metallic particle shorts the pair of conductive lines.

13. The apparatus of claim 11 wherein the computer system detects a change in capacitance when a non-metallic particle lodges on or between the pair of conductive lines of the particle detecting integrated circuit.

14. The apparatus of claim 10 wherein the computer system is semiconductor component circuitry.

15. The apparatus of claim 10 wherein the computer system is off-chip circuitry.

16. The apparatus of claim 9 wherein the particle detecting integrated circuit comprises a plurality of devices.

17. The apparatus of claim 16 wherein each of the plurality of devices includes pairs of conductive lines having a uniform pitch representing a single particle size.

18. The apparatus of claim 16 wherein each of the plurality of devices includes pairs of conductive lines having a non-uniform pitch representing a range of particle sizes.

19. A method comprising:

exposing a particle detecting integrated circuit to residual gases and particles within a vacuum environment, the particle detecting integrated circuit containing a device having a pair of conductive lines spaced at a critical pitch corresponding to particles of interest;

applying a voltage to the pair of conductive lines; and

detecting a change in an electrical property of the conductive lines resulting from a particle landing on or between the pair of conductive lines.

20. The method of claim 19 wherein detecting comprises a change in current between the pair of conductive lines.

21. The method of claim 19 wherein detecting comprises a change in a capacitance between the pair of conductive lines.

22. The method of claim 19 further comprising exposing a plurality of devices to the residual gases and particles within the vacuum environment, each one of the devices having a pair of conductive lines spaced at a critical pitch corresponding to particles of interest.

23. The method of claim 22 wherein the critical pitch corresponds to a range of particles of interest.

24. A chip fabrication method comprising:

a photolithography process including a real-time particle detection process, the real-time particle detection process comprising:

exposing a particle detecting integrated circuit embedded in a stage to residual gases and particles within a vacuum environment, the particle detecting integrated circuit containing a device having a pair of conductive lines spaced at a critical pitch corresponding to particles of interest;

applying a voltage to the pair of conductive lines;

detecting a change in an electrical property of the conductive lines resulting from a particle landing on or between the pair of conductive lines;

an etching process;

a stripping process;

a diffusion process;

an ion implantation process;

a deposition process; and

a chemical mechanical planarization process.

25. The method of claim 24 wherein detecting a change comprises a change in current between the pair of conductive lines.

26. The method of claim 24 wherein detecting a change comprises a change in a capacitance between the pair of conductive lines.

27. The method of claim 24 wherein exposing further comprises exposing a plurality of devices to the residual gases and particles within the vacuum environment, each of the devices containing a pair of conductive lines spaced at a critical pitch corresponding to particles of interest.

28. The method of claim 27 further comprising:

applying a voltage to the conductive lines of the plurality of devices; and

detecting changes in electrical properties of the pairs of conductive lines resulting from particles landing on or between the pairs of conductive lines.

29. The method of claim 28 wherein critical pitches of the conductive lines of the devices correspond to a range of particles of interest.